

Notice of Allowability

Application No.

10/072,995

Examiner

Henry S. Hu

Applicant(s)

KOBAYASHI ET AL.

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to RCE of April 26, 2004.
2. ☒ The allowed claim(s) is/are 1-3 and 6-20.
3. ☐ The drawings filed on _____ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. Applicants' amendment for RCE and two declarations filed on April 26, 2004 were all received.

Claim 1 was amended to include the limitation of Claim 5, Claims 4 and 5 were thereby canceled. The Applicants declare that no new matter was added, and the examiner confirms that the scope of amendment is fully supported by its original Claims 1 and 4-5 as well as working examples 1-4 on pages 15-20 in specification. **Claims 1-3 and 6-20 are pending now.** An action follows.

2. Claim rejections under 35 USC 102 in the previous Advisory Action dated January 30, 2004 and Final Action dated August 26, 2003 are now both removed for the reasons given in paragraphs 3-9 thereafter.

Allowable Subject Matter

3. Claims 1-3 and 6-20 are allowed.

4. The following is an examiner's statement of reasons for allowance: The above claims 1-7 and 14-15 are allowed over the closest references:

Art Unit: 1713

5. The limitation of amended parent **Claim 1** of present invention relates to *a process for producing a tetrafluoroethylene polymer comprising polymerizing tetrafluoroethylene in an aqueous medium in the presence of a dispersant, a stabilizer and a polymerization initiator; wherein the polymerization initiator is a redox polymerization initiator comprising potassium bromate/ammonium sulfite*. See other limitations of Claims 2-3 and 6-20.

6. In view of the Applicants' RCE amendment, parent **Claim 1** of present invention has been amended to only carry the specific limitation on using a “**redox polymerization initiator**” as “**potassium bromate/ammonium sulfite**” for polymerization of tetrafluoroethylene. With respect to 102 rejections for original Claims 1-20 in the previous Advisory Action dated January 30, 2004 and Final Action dated August 26, 2003, Malhotra only discloses the preparation process using a bromate/bisulfite redox initiator system to polymerize tetrafluoroethylene.

Malhotra further discloses detailed process of polymerizing tetrafluoroethylene in the presence of a **dispersant such as ammonium perfluorooctanoate, a stabilizer such as paraffin wax, and a redox binary initiator system such as potassium bromate/sodium bisulfite** has been specifically demonstrated in **Examples 1-5** to use as a polymerization initiator. In a close examination, the binary use of **potassium bromate /ammonium sulfite** is **not disclosed by Malhotra**.

Art Unit: 1713

Although Malhotra may disclose the use of **potassium bromate /ammonium bisulfite** from the general statement on column 1, line 45-47, the behavior of **potassium bromate /ammonium bisulfite** may be different from that of **potassium bromate/ammonium sulfite** in view of different basicity on sulfite and bisulfite ions.

7. On a close view of the statement disclosed by Gould as “**Bronsted base in either ions or molecules will take on protons to form the species called the conjugated acid of that base**” (page 84, paragraph 3), the addition of acid mentioned in present invention the sulfite ion will add the proton on the sulfite ion to form the bisulfite ion, which may partly read on Malhotra’s redox system in the component of bisulfite ion with a balanced chemical equation for this reaction can be as following: $\text{Na}_2\text{SO}_3 + \text{HCl} = \text{NaHSO}_3 + \text{NaCl}$ to show the relationship between sulfite and bisulfite ions. It is thereby noted by the examiner that the use of “ammonium” may behave quite different from other metal cations since ammonium is inorganic and is a combination of ammonia base and the proton cation in a close view on the formula.

In order to distinguish from other binary redox systems, the Applicants have demonstrated the use of this specific binary initiator, “**potassium bromate/ammonium sulfite**”, in working examples 1-4 on pages 15-20 of specification as well as showed data with superior and unexpected results in the newly submitted Rule 132 declaration, particularly in the area of SSG and relaxation time (see also page 7-10 of RCE amendment). Therefore, all the above-mentioned references, in combination or alone, does not teach or fairly suggest the limitations of present invention.

8. After further examination and search, the examiner found the following prior art did not teach the claimed limitation:

US Patent No. 6,399,729 B1 to Farnham et al. disclose a method for fluoromonomer polymerization by use of a chlorine-free chain transfer agent such as ether-type compounds (abstract, line 1-10; column 4, line 28-67). A redox binary system of **ammonium perfluorobutanesulfinate/sodium bromate** is used as an initiator for polymerization (column 10, line 55-56). The claimed binary initiator, “**potassium bromate/ammonium sulfite**”, is not disclosed.

US Patent No. 4,473,689 to Login et al., **US Patent No. 4,954 to Anderson** and **US Patent No. 4,739,008 to Robinson et al.** all disclose methods for preparation of water-soluble polymers from polymerization of water-soluble monomers such as acrylic acid and acrylamide (see abstract) and it may use the claimed binary redox system of “**potassium bromate/ammonium sulfite**” as an initiator for polymerization (see column 3, line 24-36 for Login, see column 10, line 9-45 for Anderson, and see column 4, line 59 for Robinson). However, all references do not teach or fairly suggest **applying this binary redox system for fluoromonomer polymerization.**

9. The one key issue, regarding using a “**redox polymerization initiator**” as “**potassium bromate/ammonium sulfite**” for polymerization of tetrafluoroethylene, cannot be overcome by any or the combination of the above references, therefore, the present invention is novel.

Art Unit: 1713

10. As of the date of this office action, the examiner has not located or identified any reference that can be used singularly or in combination with another reference including the above references to render the present invention anticipated or obvious to one of the ordinary skill in the art. Therefore, the independent and parent **Claim 1** is allowed for the reason listed above. Since the prior art of record fails to teach the present invention, the remaining pending **Claims 2-3 and 6-20** are passed to issue.

11. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

12. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Henry S. Hu whose telephone number is (571) 272-1103. The examiner can be reached on Monday through Friday from 9:00 AM -5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The fax number for the organization where this application or proceeding is assigned is (703) 872-9306 for all regular communications.


Art Unit: 1713

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Henry S. Hu

June 9, 2004



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